



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

October 11, 2001

MEMORANDUM

SUBJECT: Review of Propanil Incident Reports
DP Barcode D278425, Chemical #028201

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BACKGROUND

The following data bases have been consulted for the poisoning incident data on the active ingredient Propanil (PC Code:028201):

1) OPP Incident Data System (IDS) - reports of incidents from various sources, including registrants, other federal and state health and environmental agencies and individual consumers, submitted to OPP since 1992. Reports submitted to the Incident Data System represent anecdotal reports or allegations only, unless otherwise stated. Typically no conclusions can be drawn implicating the pesticide as a cause of any of the reported health effects. Nevertheless, sometimes with enough cases and/or enough documentation risk mitigation measures may be suggested.

2) Poison Control Centers - as the result of a data purchase by EPA, OPP received Poison Control Center data covering the years 1993 through 1998 for all pesticides. Most of the national Poison Control Centers (PCCs) participate in a national data collection system, the Toxic Exposure Surveillance System which obtains data from about 65-70 centers at hospitals and universities. PCCs provide telephone consultation for individuals and health care providers on suspected poisonings, involving drugs, household products, pesticides, etc.

3) California Department of Pesticide Regulation - California has collected uniform data on suspected pesticide poisonings since 1982. Physicians are required, by statute, to report to their local health officer all occurrences of illness suspected of being related to exposure to pesticides. The majority of the incidents involve workers. Information on exposure (worker activity), type of illness (systemic, eye, skin, eye/skin and respiratory), likelihood of a causal relationship, and number of days off work and in the hospital are provided.

4) National Pesticide Telecommunications Network (NPTN) - NPTN is a toll-free information service supported by OPP. A ranking of the top 200 active ingredients for which telephone calls were received during calendar years 1984-1991, inclusive has been prepared. The total number of calls was tabulated for the categories human incidents, animal incidents, calls for information, and others.

PROPANIL REVIEW

I. Incident Data System

Please note that the following cases from the IDS do not have documentation confirming exposure or health effects unless otherwise noted.

Incident#6275-1

A pesticide incident occurred in 1997, when a twenty-one year old female reported nausea, muscle weakness, respiratory problems, and a skin rash less than 24 hours after spraying the product to clean out some weeds. This exposure involved a mixture of propanil and MCPA. A review of the exposure circumstances led the registrant's toxicologist to conclude that the reported symptoms were not related to the exposure. No further information on the disposition of the case was reported.

Incident#8384-7

A pesticide incident occurred in 1997, when a sixteen year old child was exposed to the product and reported eye irritation and pain and respiratory irritation. No further information on the disposition of the case was reported.

II. Poison Control Center Data - 1993 through 1998

Results for the years 1993 through 1998 were acquired for 8 exposures to propanil reported to Poison Control Centers. Cases involving exposures to multiple products are excluded. Only one case was reported among children under six years of age and two cases among older children and adults exposed at their workplace. There were 5 non-occupationally exposed cases among older children and adults. This was too few cases to warrant detailed analysis.

Half of the cases did not develop any symptoms as a result of their exposure or in 1 case was not expected to develop symptoms. None of these cases reported a major outcome, though one exposure was considered potentially toxic, and one case reported a moderate outcome. Only 1 of all 8 cases was reported to have been seen in a health care facility.

III. California Data - 1982 through 1999

Detailed descriptions of 2 cases submitted to the California Pesticide Illness Surveillance Program (1982-1999) were reviewed. In the first case, the worker applied the product by hand and reported a skin rash. In the second case, the worker applied the product by hand and reported chest pain and heart burn. The worker was diagnosed with gastritis. In both of these cases the relationship between exposure and health effects was considered possible.

IV. Literature Review

DeSilva and Bodinayake (1997) reported on five patients that ingested propanil and were treated at a hospital. The first patient died after intensive treatment for haemolysis. The second patient reported acute hepatitis requiring a transfusion and treatment with methylene blue. The third, fourth, and fifth patient reported a mild poisoning and were treated with methylene blue. All of the patients were diagnosed with methemoglobinemia. Estimated dose for all five male adults was around 100-200 ml of a 36% solution of propanil.

Yamazaki et al. (2001) reported on a forty-seven year old male who ingested propanil and carbaryl mixture. He reported methemoglobinemia and lung congestion and edema and later died. His blood cholinesterase level was within the antemortem normal range. Propanil was considered "most probably responsible for the death". Estimated dose was at least 10 ml and half of the 100 ml bottle at the scene was empty and reported to contain 25% propanil and 5% carbaryl.

Morse et al.(1979) reported on a health effects evaluation in August 1976 at a plant that manufactured methomyl and propanil in rural Arkansas. The plant employed about 111 workers. Of these workers, 102 participated in the study. Ninety-six percent of the workers were male and 88% were white. Their average age was 28.7 years and worked at the plant for about 24 months. A questionnaire was administered to the workers that covered demographics, work history, symptoms or history of chemical poisoning, personal habits, and sources of other chemical exposure. Production workers (28) exposed to dichloroaniline and propanil had symptoms of chloracne (61%), blueness (cyanosis 21%), and skin rash (46%). An acetylcholinesterase test was conducted that

showed no significant depression in the workers surveyed. The study concluded that the occurrence of chloracne in production workers was caused by dichloroaniline and propanil exposure.

IV. National Pesticide Telecommunications Network

On the list of the top 200 chemicals for which NPTN received calls from 1984-1991 inclusively, propanil was not reported to be involved in human incidents.

VI. Conclusions

Relatively few incidents of illness have been reported due to propanil.

VII. Recommendations

No recommendations can be made based on the few incident reports available.

References

DeSilva WAS, Bodinayake CK. Propanil poisoning. Ceylon Medical Journal 42:81-84, 1997.

Yamazaki M, Terada M, Kuroki H, Honda K, Matoba R, Mitsukuni Y. Pesticide poisoning initially suspected as a natural death. Journal of Forensic Science 46:165-170, 2001.

Morse DL, Baker EL, Kimbrough RD, Wisseman CL. Propanil-chloracne and methomyl toxicity in workers of a pesticide manufacturing plant. Clinical Toxicology 15:13-21, 1979.

cc: Correspondence
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